CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT

Cinergy Corporation
S.R. 38 (South side)
Cadiz, Indiana

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-065-10469-00032	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), and presented in the permit application.

A.1 General Information

The Permittee owns and operates a power plant.

Responsible Official:	James J. Cook
Source Address:	S.R. 38 (South Side), Cadiz, IN
Mailing Address:	c/o Steven L. Pearl, 1000 East Main Street, Plainfield, IN 46168-1782
SIC Code:	4911
County Location:	Henry
County Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules

A.2 Emission Units and Pollution Control Equipment Summary

This construction permit consists of the following emission units and pollution control devices:

(a) Three (3) combustion turbines, designated as turbine units 1-3, utilizing natural gas or No. 2 fuel oil, with an anticipated maximum heat input capacity of 407.8 mmBtu/hr per turbine unit, with water-injection for NOx emissions control and exhaust to three (3) stacks designated as 1-3.

(b) Two (2) fuel oil storage tanks, designated as A and B, with a maximum combined annual throughput of 22 million gallons per year and exhausts to the atmosphere. Tank A has a maximum capacity of 250,000 gallons and Tank B has a maximum capacity of 500,000 gallons.

(c) One (1) waste oil tank, designated as Tank 3, with a maximum capacity of, 5,312 gallons and exhausts to the atmosphere.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source will be required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22).
(b) This new source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

A.4 Acid Rain Permit Applicability [326 IAC 2-7-2]

This stationary source shall be required to have a Phase II, Acid Rain permit by 40 CFR Part 72.30 (Applicability) because:

(a) The combustion turbines are new units under 40 CR Part 72.6.
(b) The source cannot operate the combustion units until their Phase II, Acid Rain permit has been issued.

SECTION B GENERAL CONSTRUCTION AND OPERATION CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

Construction Conditions [326 IAC 2-1-3]

B.1 General Construction Conditions

(a) The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).

(b) This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.3 Revocation of Permits [326 IAC 2-1-9(b)]

Pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.4 Permit Review Rules [326 IAC 2]

Notwithstanding Condition B.11, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

B.5 First Time Operation Permit [326 IAC 2-1-4]

This document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if the provisions of 40 CFR Parts 72-80 (Acid Rain Program) are not applicable to such facilities. If the facilities are subject to the provisions of 40 CFR Parts 72-80 (Acid Rain Program), then the proper Phase II, Acid Rain permit must be issued to such facilities before operation can commence.

(b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

(d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

Operation Conditions

B.6 General Operation Conditions

(a) The data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).

(b) The Permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC13-17) and the rules promulgated thereunder.

B.7. Preventive Maintenance Plan [326 IAC 1-6-3]

Pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

(a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

(b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

(c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

B.8 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to the commissioner or his appointed representative. Notification shall be made by telephone or facsimile using the Malfunction Report Forms, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment subject to the requirements of 326 IAC 1-6 shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6)..

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39].

B.9 Transfer of Permit [326 IAC 2-1-6]

Pursuant to 326 IAC 2-1-6 (Transfer of Permits):

(a) In the event that ownership of the three (3) combustion turbines and three (3) storage tanks is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) The OAM shall reserve the right to issue a new permit.

B.10 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

B.11 Availability of Permit [326 IAC 2-1-3(I)]

Pursuant to 326 IAC 2-1-3(I), the Permittee shall maintain all applicable permits on the premises of the source and shall make this permit available for inspection by the IDEM, or other public official having jurisdiction.

B.12 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60, Subpart GG, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date);

(b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);

(c) Actual start-up date (within 15 days after such date); and

(d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM-OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitation and Standards

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

(a) The potential to emit of nitrogen oxides (NOx), carbon monoxide (CO) and sulfur dioxide (SO2) for the facilities listed in this construction permit, are greater than 250 tons per year. The potential to emit, of the above listed pollutants, is limited to less than 250 tons per year, therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.

(b) Any change or modification which may increase the allowable emissions, potential emissions, or potential to emit, as appropriate, to the following:

1.) 25 tons per year or more (326 IAC 2-1),

2.) 10 tons per year or more for a single HAP or combination HAPs greater than 25 tons per year or more (326 IAC 2-1-3.4),

3.) 250 tons per year or more (326 IAC 2-2),

from the equipment covered in this construction permit must be approved by the Office of Air Management (OAM) before such change may occur.

C.2 326 IAC 5 (Opacity Limitations):

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the opacity shall meet the following:

(a) Opacity shall not exceed an average of 40% any one (1) six (6) minute averaging period.

(b) Opacity shall not exceed 60% for more than a cumulative total of 15 minutes (60 readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute non-overlapping integrated averages for a continuous opacity monitor) in a 6-hour period.

C.3 Operation of Equipment [326 IAC 2-1-3]

All air pollution control equipment listed in this permit shall be in place and operated at all times that the emission units vented to the control equipment are in operation, consistent with proper operation of equipment, as described in Section D of this permit.

Testing Requirements

C.4 Performance Testing [326 IAC 3-6]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual intended test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the Commissioner, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Monitoring Requirements

C.5 Compliance Monitoring [326 IAC 2-1-3]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment, no more than ninety (90) days after receipt of this permit. If due to circumstances beyond its control, this schedule cannot be met, the Permittee shall notify:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, no more than ninety (90) days after receipt of this permit, with full justification of the reasons for the inability to meet this date and a schedule which it expects to meet. If a denial of the request is not received before the monitoring is fully implemented, the schedule shall be deemed approved.

C.6 Monitoring Methods [326 IAC 3]

Any monitoring or testing performed to meet the requirements of this permit shall be performed, according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

Corrective Actions and Response Steps

C.7 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within 180 days from the date on which this source commences operation.

(c) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, then IDEM, OAM, shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

Record Keeping and Reporting Requirements

C.8 Annual Emission Reporting [326 IAC 2-6]

Pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30.

C.9 Monitoring Data Availability [326 IAC 2-1-3]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing. All observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.10 General Record Keeping Requirements [326 IAC 2-1-3]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location, or at an Indiana central office location provided that OAM is notified in writing prior, for a minimum of three (3) years, and available upon verbal request of an IDEM, OAM, representative. They may be stored elsewhere for the remaining two (2) years providing they are made available within thirty (30) days after written request.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this permit;

(2) All applicable original strip chart recordings for continuous monitoring instrumentation as required by this permit;

(3) All calibration and maintenance records as required by this permit;

(4) Records of preventive maintenance shall be sufficient to demonstrate that improper maintenance did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures.

(d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.11 General Reporting Requirements [326 IAC 2-1-3]

(a) Reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

(c) Unless otherwise specified in this permit, any report shall be submitted within thirty (30) days of the end of the reporting period.

(d) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:

(1) an excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or

(2) an emergency as defined in 326 IAC 2-7-1(12); or

(3) failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.

(4) failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.

(e) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.

(f) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

SECTION D.1 FACILITY CONDITIONS

(a) Three (3) combustion turbines, designated as turbine units 1-3, utilizing natural gas or No. 2 fuel oil, with an anticipated maximum heat input capacity of 407.8 mmBtu/hr per turbine unit, with water-injection for NOx emissions control and exhaust to three (3) stacks designated as 1-3.

(b) Two (2) fuel oil storage tanks, designated as A and B, with a maximum combined annual throughput of 22 million gallons per year and exhausts to the atmosphere. Tank A has a maximum capacity of 250,000 gallons and Tank B has a maximum capacity of 500,000 gallons.

(c) One (1) waste oil tank, designated as Tank 3, with a maximum capacity of 5,312 gallons and exhausts to the atmosphere.

The information describing the source contained in this Section D.1 is descriptive information, and does not constitute federally enforceable conditions.

Emissions Limitation and Standards

D.1.1 NOx and CO Limitations [326 IAC 2-2]

(a) The potential to emit of NOx and CO from the three (3) combustion turbines shall be less than 250 tons per twelve (12) consecutive months per specified pollutant, rolled on a monthly basis. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

D.1.2 Fuel Oil Limitation [326 IAC 2-2]

(a) The total input of fuel oil to the three (3) combustion turbines shall be less than 36,231,798 gallons per twelve (12) consecutive months, rolled on a monthly basis. This fuel usage limitation is equivalent to SO2 emissions of less than 250 tons per twelve (12) consecutive months, rolled on a monthly basis. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

(b) During the first 12 months of operation, the fuel usage shall be limited such that the total usage divided by the accumulated months of operation shall be less than 3,019.31 gallons per month.

(c) The maximum sulfur content of the fuel oil shall not exceed 0.1%.

D.1.3 40 CFR Part 60, Subpart GG Applicability (Stationary Gas Turbines)

(a) The three (3) combustion turbines are subject to 40 CFR Part 60, Subpart GG because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

(b) Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO_x emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight.

D.1.4 40 CFR Part 60, Subpart Kb Applicability (Volatile Organic Storage Vessels)

(a) Tanks A and B are subject to 40 CFR Part 60, Subpart Kb because the maximum capacity of each is greater than 40 m^3 that is used to store volatile organic liquids (including petroleum) for which construction, reconstruction, or modification commenced after July 23, 1984.

(b) The tanks are exempt from the General Provisions (Part 60, subpart A) and from the provisions of this subpart because the tanks have a capacity greater than or equal to 151 m^3, storing liquid with a maximum true vapor pressure less than 3.5 kPa.

(c) Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range. (Available data on the storage temperature may be used to determine the maximum vapor pressure as determined in 40 CFR Part 60.117b(e)(1)-(3)).

D.1.5 326 IAC 7-1 (Sulfur Dioxide Emission Limitations)

Pursuant to 326 IAC 7-1.1-2, the sulfur dioxide emissions from the three (3) turbines shall be limited to 0.5 pounds per million Btu for distillate oil combustion.

D.1.6 Carbon Monoxide Emission Limitations [326 IAC 9-1]

This source is subject to 326 IAC 9-1 because it is a stationary source of CO emissions commencing operation after March 21, 1972. There are no applicable CO emission limits, under this state rule, established for this type of operation.

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

Compliance Determination Requirements

D.1.8 Testing Requirements

(a) Pursuant to 326 IAC 3-5, the Permittee shall conduct a performance test on the combustion turbines' exhaust stacks (designated as #1-#3) in order to certify the continuous emission monitoring system for NOx and CO.

(b) IDEM may require compliance testing at any specific time when necessary to determine if the source is in compliance. If testing is required by IDEM, compliance with the SO2, NOx and CO limits specified in Condition D.1.1 and Condition D.1.2, shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.1.9 326 IAC 7-1 [Sulfur Content Compliance]

(a) Pursuant to 326 IAC 7-2-1, the Permittee shall demonstrate that the fuel oil sulfur content does not exceed 0.5 pounds per million Btus by:

(1) Fuel sampling and analysis data shall be collected pursuant to procedures specified in 326 IAC 3-7-4 for oil combustion and shall be determined by using a calendar month average sulfur dioxide emission rate in pounds per million Btus unless a shorter averaging time or alternate methodology is specified under 326 IAC 7-2. Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

(2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the three (3) combustion turbines, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6,

(3) A determination of noncompliance pursuant to either of the methods specified in subsections (1) or (2) above shall not be refuted by evidence of compliance pursuant to the other method.

(4) Upon written notification of a facility owner or operator to the department, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance.

Compliance Monitoring Requirements

D.1.10 40 CFR Part 60, Subpart GG Compliance Requirements (Stationary Gas Turbines)

Pursuant to 40 CFR Part 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(a) install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine, as required by 40 CFR 60.334(a);

(b) monitor the sulfur content and nitrogen content of the fuel being fired in the turbine, as required by 40 CFR 60.334(b). The custom schedule for the three (3) turbines shall be the following:

(1) monitor the fuel oil combusted in accordance with condition D.1.9; and

(2) monitor the natural gas combusted through the analysis of pipeline gas from the natural gas supplier. Gas samples shall be taken once a calendar quarter at the closet proximity to the site of the turbines. In the event of less than 30 days of the turbines operation in a quarter, the quarterly sampling is waived. For these purposes, one day of operation shall be defined as any day that gas is burned for more than one (1) hour. Quarterly sampling and analysis of the gas shall be performed according to ASTM methods in 60.335(a) and 60.335(d);

(c) and report periods of excess emissions, as required by 40 CFR 334(c).

D.1.11 Continuous Emission Monitoring System (CEMS) [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5-1(d)(1), the owner or operator of a new source with an emission limitation or permit requirement established under 326 IAC 2-1-3(i)(8) shall be required to install, calibrate, certify, operate and maintain a continuous monitoring system for measuring NO_x and CO emissions rates in pounds per hour from stacks 1-3 in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3. The continuous monitoring system will determine compliance with the NOX and CO emission limits established in Condition D.1.1.

(b) The Permittee shall submit to IDEM, OAM, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

(c) To document compliance with Condition D.1.1, the Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(d) In instances of downtime, the source shall use EPA's AP-42 emission factors, tables 3.1-2 and 3.1-3, to demonstrate compliance with the CO and NOx limits established in Condition D.1.1.

(e) After twelve (12) consecutive months of operation, the source may submit to OAM alternative emission factors and their corresponding temperatures to use in lieu of the AP-42 emission factors in instances of downtime. The alternative emissions factors must be approved by OAM prior to use in calculating emissions for the limitations established in this construction permit. The alternative emission factors shall be based upon collected monitoring and test data supplied from an approved continuous emission monitoring system and/or approved performance tests.

In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the source shall continue to collect data until appropriate emission factors can be established. During this period of time, the source shall continue to use AP-42 emission factors in periods of downtime.

Record Keeping and Reporting Requirements [326 IAC 2-1-3]

D.1.12 Record Keeping Requirements

(a) To document compliance with Condition D.1.1, the Permittee shall maintain records required ~~under 326 IAC 3-5-6 at the source in a manner so that they may be inspected by the IDEM,~~ OAM, or the U.S. EPA., if so requested or required.

(b) To document compliance with Condition D.1.2, the Permittee shall maintain records of the following:

(1) amounts of each fuel combusted during each month;

(2) the percent sulfur content; and

(3) the heat input capacity of each turbine.

(c) To document compliance with Condition D.1.4, the Permittee shall:

(1) maintain the records of the volatile organic liquid (VOL) stored;

(2) the period of storage;

(3) the maximum true vapor pressure of the volatile organic liquid (VOL) during the respective storage period; and

(4) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

(d) To document compliance with D.1.10(b)(2), the source shall maintain records of the natural gas analyses, including the sulfur and nitrogen content of the gas, for a period of three (3) years.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.13 Reporting Requirements

(a) The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for NO_x and CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with condition C.11 - General Reporting Requirements of this permit.

(b) Pursuant to 326 IAC 7-2-1, owners or operators of sources or facilities subject to 326 IAC 7-1.2 or 326 IAC 7-4, shall submit to the Commissioner the following reports based on fuel sampling and analysis data in accordance with procedures specified under 326 IAC 3-3:

(1) Shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per million Btus upon request.

(c) A quarterly summary of the information to document compliance with Condition D.1.1 and D.1.2 shall be submitted to the address listed in Section C - General Reporting

Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: Cinergy Corporation. PHONE NO. (317)838-1758

LOCATION: Cadiz/Henry
PERMIT NO. 065-10469 AFS PLANT ID: 065-00032 AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON:
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 19____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:_____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 19____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER:_____
ESTIMATED AMOUNT OF POLLUTANT MITTED DURING MALFUNCTION: _____
MEASURES TAKEN TO MINIMIZE EMISSIONS:_____
REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS:_____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT:_____
INTERIM CONTROL MEASURES: (IF APPLICABLE)
_____

MALFUNCTION REPORTED BY: _____TITLE:_____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____DATE:_____TIME:_____

FAX NUMBER - 317 233-5967

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Cinergy Corporation
Location: South side of S.R. 38, Cadiz, Indiana
Permit No.: 065-10469-00032
Source: Three (3) combustion turbines (407.8 mmBtu/hr per turbine)
Pollutant: SO_2
Limit: Less than 36,231,798 gallons per twelve (12) consecutive month period (equivalent to less than 250 ton per (12) consecutive month period)

Year: _____

Month	No. 2 fuel oil Usage (gallons/month)	No. 2 fuel oil Usage for previous month(s) (gallons)	No. 2 fuel oil Usage for twelve month period (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Cinergy Corporation
Location: South side of S.R. 38, Cadiz, Indiana
Permit No.: 065-10469-00032
Source: Three (3) combustion turbines (407.8 mmBtu/hr per turbine)
Pollutant: NOx and CO
Limit: Less than 250 tons per twelve (12) consecutive month period

Year: _____

Month	CO Emissions (tons/ month)	CO Emissions for previous month (tons)	CO Emissions for previous twelve month period (tons)	NOx Emissions (tons/ month)	NOx Emissions for previous month (tons)	NOx Emissions for previous twelve month period (tons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name:	Cinergy Corporation
Source Location:	S.R. 38 (Southside), Cadiz, Indiana
County:	Henry
Construction Permit No.:	CP-065-10469-00032
SIC Code:	4911
Permit Reviewer:	Nysa L. James

The Office of Air Management (OAM) has reviewed an application from Cinergy Corporation relating to the construction and operation of a power plant, consisting of the following equipment:

(a) Three (3) combustion turbines, designated as turbine units 1-3, utilizing natural gas or No. 2 fuel oil, with an anticipated maximum heat input capacity of 407.8 mmBtu/hr per turbine unit, with water-injection for NOx emissions control and exhaust to three (3) stacks designated as 1-3.

(b) Two (2) fuel oil storage tanks, designated as A and B, with a maximum combined annual throughput of 22 million gallons per year and exhausts to the atmosphere. Tank A has a maximum capacity of 250,000 gallons and Tank B has a maximum capacity of 500,000 gallons.

(c) One (1) waste oil tank, designated as Tank 3, with a maximum capacity of 5,312 gallons and exhausts to the atmosphere.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
1	nat. gas turbine #1	90	9	528,000	780-840
2	nat. gas turbine #2	90	9	528,000	780-840
3	nat. gas turbine #3	90	9	528,000	780-840

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 15, 1998, additional information was received on April 21, 1999.

Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets) for detailed calculations (two (2) pages).

The VOC emissions from the storage tanks are considered insignificant by the Office of Air Management.

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	--	224.5
Particulate Matter (PM10)	--	224.5
Sulfur Dioxide (SO_2)	--	541.2
Volatile Organic Compounds (VOC)	–	49.4
Carbon Monoxide (CO)	--	1500.4
Nitrogen Oxide	--	935.1
Antimony	--	0.12
Arsenic	--	0.03
Beryllium	--	0.00
Cadmium	--	0.02
Chlorine/HCL	–	13.40
Chromium	--	0.25
Cobalt	--	0.05
Lead	--	0.31
Manganese	--	1.82
Mercury	-	0.00
Nickel	--	6.43
Phosphorus	--	1.61
Selenium	--	0.03
Combination of HAPs	–	24.07

(a) Allowable emissions are determined from the applicability of rule 326 IAC 7-1.1-2. Pursuant to 326 IAC 7-1, the sulfur dioxide emissions from the three (3) turbines shall be limited to 0.5 pounds per million Btu for distillate oil combustion. Compliance shall be determined based on 326 IAC 7-2.

0.5 lb/mmBtu * 407.8 mmBtu/hr = 203.9 lb/hr; 203.9 lb/hr * 8760 hr/yr * 1 ton/2000 lb = 893.08 ton/yr.

(b) The potential emissions before control are less than the allowable emissions, therefore, the potential emissions before control are used for the permitting determination.

(c) Allowable emissions (as defined in the Indiana Rule) of SO_2, PM, VOC, CO and NOx are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Henry County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Henry County has been classified as attainment or unclassifiable for PM_{10}, CO and SO_2. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	92.31
PM10	92.31
SO_2	Less than 250
VOC	21.74
CO	Less than 250
NO_x	Less than 250
Chlorine/HCL	6.20
Antimony	0.05
Arsenic	0.01
Cadmium	0.01
Chromium	0.12
Cobalt	0.02
Lead	0.14
Manganese	0.84
Nickel	2.98
Phosphorus	0.74
Selenium	0.01
Combination HAPs	11.15

(a) This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

The NOx and CO limited potential to emit is based on a less than 250 ton per year limit. Compliance with the limits shall be demonstrated by a continuos monitoring system.

The PM10, SO_2, VOC and HAPs' limited potential to emit is based on the limited fuel usage which was determined by limiting the SO_2 emissions to less than 250 tons per year. These limited emissions are considered worst case.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) at least one of the criteria pollutant is greater than or equal to 100 tons per year,
(b) a single hazardous air pollutant (HAP) is greater than or equal to 10 tons per year, or
(c) any combination of HAPs is greater than or equal to 25 tons/year.

This new source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

Federal Rule Applicability

(a) 40 CFR 60, Subpart GG (Stationary Gas Turbines):
The three (3) combustion turbines are subject to 40 CFR Part 60, Subpart GG because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO_x emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;

(3) install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine, as required by 40 CFR 60.334(a);

(4) monitor the sulfur content and nitrogen content of the fuel being fired in the turbine, as required by 40 CFR 60.334(b). The custom schedule for the three (3) turbines shall be the following:

(a) monitor the fuel oil combusted in accordance with condition D.1.9; and

(b) monitor the natural gas combusted through the analysis of pipeline gas from the natural gas supplier. Gas samples shall be taken once a calendar quarter at the closet proximity to the site of the turbines. In the event of less than 30 days of the turbines operation in a quarter, the quarterly sampling is waived. For these purposes, one day of operation shall be defined as any day that gas is burned for more than one (1) hour. Quarterly sampling and analysis of the gas shall be performed according to ASTM methods in 60.335(a) and 60.335(d);

(5) report periods of excess emissions, as required by 40 CFR 334(c).

(b) 40 CFR Part 60, Subpart Kb (Volatile Organic Storage Vessels):
Tanks A and B are subject to 40 CFR Part 60, Subpart Kb because the maximum capacity of each is greater than 40 m^3 that is used to store volatile organic liquids (including petroleum) for which construction, reconstruction, or modification commenced after July 23, 1984.

The tanks are exempt from the General Provisions (Part 60, subpart A) and from the provisions of this subpart because the tanks have a capacity greater than or equal to 151 m^3, storing liquid with a maximum true vapor pressure less than 3.5 kPa.

Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall:

(1) maintain the records of the volatile organic liquid (VOL) stored;

(2) the period of storage;

(3) the maximum true vapor pressure of the volatile organic liquid (VOL) during the respective storage period;

(4) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel;

(5) shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range. (Available data on the storage temperature may be used to determine the maximum vapor pressure as determined in 40 CFR Part 60.117b(e)(1)-(3))

(c) This source is subject to the requirements of 40 CFR Part 72-80 (Acid Rain Program). The requirements of this program shall be detailed in the Phase II, Acid Rain Permit.

(d) There are no other New Source Performance Standards (326 IAC 12) and 40 CFR Part 60 applicable to this facility.

(e) There are no NESHAP 40 CFR Part 63 applicable to this facility.

State Rule Applicability

326 IAC 1-5-2 and 326 IAC 1-5-3 (Emergency Reduction Plans):

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015
within 180 days from the date on which this source commences operation.

(c) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, then IDEM, OAM, shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

The source is subject to 326 IAC 1-5-2 and 1-5-3 because the source's CO, NOx, SO_2 and PM_{10} PTE is greater than 100 tons per year.

326 IAC 1-6-3 (Preventive Maintenance):

(a) The Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this permit, including the following information on each:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission units;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM and OAM upon request and shall be subject to review and approval by IDEM and OAM.

326 IAC 2-1-3.4 (New Source Toxics Rule) does not apply to the facilities because the single HAP potential emissions from each facility are less than 10 ton/yr and the combination HAPs from each facility are less than 25 tons/yr.

326 IAC 2-2 (Prevention of Significant Deterioration):

(a) The potential to emit of NOx and CO from the three (3) combustion turbines shall be less than 250 tons per twelve (12) consecutive months per pollutant, rolled on a monthly basis. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

(b) The source shall be required to install continuous emissions monitoring system in accordance with 326 IAC 3-5, to demonstrate compliance with the above mentioned NOx and CO limits. In periods of downtime, compliance shall be demonstrated by using EPA's AP-42 Emission Factors, tables 3.1-2 and 3.1-3 or by an approved alternative method as described under Condition D.1.10 in the construction permit. Emissions shall be calculated by multiplying the heat input capacity times the appropriate emission factor.

(c) The input of fuel oil to the three (3) combustion turbines shall be less than 36,231,798 gallons per twelve (12) consecutive months, rolled on a monthly basis. This fuel usage limitation is equivalent to SO2 emissions of less than 250 tons per twelve (12) consecutive months, rolled on a monthly basis. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

During the first 12 months of operation, the fuel usage shall be limited such that the total usage divided by the accumulated months of operation shall be less than 3,019.31 gallons per month.

(d) The maximum sulfur content shall not exceed 0.1%.

(e) The source shall be required to perform fuel sampling and analysis to demonstrate compliance with the above mention SO2 limit. This data shall be collected pursuant to procedures specified in 326 IAC 3-7-4 for oil combustion and shall be determined by using a calendar month average sulfur dioxide emission rate in pounds per million Btus unless a shorter averaging time. Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

326 IAC 2-6 (Emission Reporting):

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 100 tons/yr of NOx, SO_2, PM_{10} and CO. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility.

The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 3-5 (Continuous Monitoring of Emissions):

(a) Pursuant to 326 IAC 3-5-1(d)(1), the owner or operator of a new source with an emission limitation or permit requirement established under 326 IAC 2-1-3(i)(8) shall be required to install, calibrate, certify, operate and maintain a continuous monitoring system for measuring NO_x and CO emissions rates in pounds per hour from stacks 1-3 in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.

(b) The Permittee shall submit to IDEM, OAM, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

(c) The Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(d) In instances of downtime, the source shall use EPA's AP-42 emission factors to demonstrate compliance with the limits established in this construction permit.

(e) After twelve (12) consecutive months of operation, the source may submit to OAM alternative emission factors and their corresponding temperatures to use in lieu of the AP-42 emission factors in instances of downtime. The alternative emissions factors must be approved by OAM prior to use in calculating emissions for the limitations established in this construction permit. The alternative emission factors shall be based upon collected monitoring and test data supplied from an approved continuous emission monitoring system and/or approved performance tests. In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the source shall continue to collect data until appropriate emission factors can be established. During this period of time, the source shall continue to use AP-42 emission factors in periods of downtime.

This condition shall determine continuous compliance with the NO_x and CO emission limits established in this construction permit to avoid 326 IAC 2-2.

326 IAC 5-1-2 (Opacity Limitations):

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the opacity shall meet the following:

(a) Opacity shall not exceed an average of 40% any one (1) six (6) minute averaging period.

(b) Opacity shall not exceed 60% for more than a cumulative total of 15 minutes (60 readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute non-overlapping integrated averages for a continuous opacity monitor) in a 6-hour period.

326 IAC 6-2 does not apply to the turbines because the combustion units are not utilized for indirect heating.

No other 326 IAC 6 rules apply.

326 IAC 7-1 (Sulfur Dioxide Emission Limitations):

Pursuant to 326 IAC 7-1.1-2, the sulfur dioxide emissions from the three (3) turbines shall be limited to 0.5 pounds per million Btu for distillate oil combustion.

326 IAC 7-2-1 (Compliance and Reporting Requirements):

(a) Pursuant to 326 IAC 7-2-1, owners or operators of sources or facilities subject to 326 IAC 7-1.2 or 326 IAC 7-4, shall submit to the Commissioner the following reports based on fuel sampling and analysis data in accordance with procedures specified under 326 IAC 3-3:

(1) Shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per million Btus upon request.

(b) Pursuant to 326 IAC 7-2-1, the Permittee shall demonstrate that the fuel oil sulfur content does not exceed 0.5 pounds per million Btus by:

(1) Fuel sampling and analysis data shall be collected pursuant to procedures specified in 326 IAC 3-7-4 for oil combustion and shall be determined by using a calendar month average sulfur dioxide emission rate in pounds per million Btus unless a shorter averaging time or alternate methodology is specified under 326 IAC 7-2. Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

(2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the three (3) combustion turbines, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or

(3) Upon written notification of a facility owner or operator to the department, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance.

A determination of noncompliance pursuant to either of the methods specified in (1), (2) or (3) above shall not be refuted by evidence of compliance pursuant to the other method.

326 IAC 8-1-6 does not apply to the combustion turbines because the potential VOC emissions are less than 25 tons per year per unit.

No other 326 IAC 8 rules apply.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 189 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) These new combustion turbines will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.

(b) See attached spreadsheets for detailed air toxic calculations (Page 2 of 2).

Conclusion

The construction of the three (3) combustion turbines will be subject to the conditions of the attached proposed **Construction Permit No. CP-065-10469-00032.**

Appendix A: Emission Calculations
Three (3) 407.8 MMBTU/hr Turbines

Company Name: **Cinergy Corporation** **CP#:** CP065-10469
City, Indiana: **Cadiz, Indiana** **Plt ID:** 065-00032
Reviewer: **Nysa James**
Date: **01/19/99**

B. SO2 Limited Emissions

	Natural Gas	Fuel Oil	PSD Minor Limit
SO2	233.3	249.0	249

The fuel usage limits are based on the PSD minor limit threshold of 249 tons per year which the source requested on December 15, 1998.

Limited SO2 Emissions:

Worst case emissions are based on burning No. 2 fuel oil, therefore SO2 PTE is equal to 541.21 ton/yr.
(250 ton/yr/541.24ton/yr) * Maximum throughput (8954.38 gal/hr) = 4136.05 gal/hr
4136.05 gal/hr * 0.0138 lb/gal (emission factor from AP-42) = 57.07 lb/hr
57.07 lb/hr * 8760 hr/yr * ton/2000 lb = 250 ton/yr. Therefore, the three (3) turbines shall use less than 4136.05 gal/hr total.
This limit is equivalent to less than 36,231.79 kgal/yr total.

C. HAP Emissions

Heat Input Capacity: 407.8 MMBtu/hr

Pollutant	Emission Factor (lbs/MMBtu)	Emissions (tons/yr)	Emissions for 3 (tons/yr)	Limited Emissions for 3 (tons/yr)
Antimony	2.2E-05	0.04	0.12	0.05
Arsenic	4.9E-06	0.01	0.03	0.01
Beryllium	3.3E-07	0.00	0.00	0.00
Cadmium	4.2E-06	0.01	0.02	0.01
Chlorine/HCl	2.5E-03	4.47	13.40	6.20
Chromium	4.7E-05	0.08	0.25	0.12
Cobalt	9.1E-06	0.02	0.05	0.02
Lead	5.8E-05	0.10	0.31	0.14
Manganese	3.4E-04	0.61	1.82	0.84
Mercury	9.1E-07	0.00	0.00	0.00
Nickel	1.2E-03	2.14	6.43	2.98
Phosphorus	3.0E-04	0.54	1.61	0.74
Selenium	5.3E-06	0.01	0.03	0.01
TOTAL		8.02	24.07	11.15

Methodology

Emission Factors are from AP42 (October 1996), Table 3.1-4
Emission Factor for Chlorine/HCl is from EPRI emission factors.
Emissions (tons/yr) = Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / 2,000 lb/ton
Limited Emissions (tons/yr) = Limited usage rate based on SO2 emissions (kgal/yr for all three (3) turbines) * 0.137 MMbtu/gal * 1000 gal/kgal *1 ton/2000 lb

Cinergy Corporation. **CP 065-10469**
Henry County, IN **Plt ID 065-00032**

Air Quality Analysis

Introduction

Cinergy Corporation (Cinergy) has applied for a minor source permit to construct a proposed power plant using three combustion turbines in Henry County, Indiana. The proposed site will be located approximately west northwest 1 mile from Cadiz, Indiana. Henry County is designated attainment for all criteria pollutants.

Dames and Moore prepared the permit application for Cinergy. The modeling portion of permit application was received by the Office of Air Management (OAM) on December 18, 1998. This document provides the Air Quality Modeling Section's air quality analysis and results.

Executive Summary

The air quality impact analysis examined NOx, SO_2, PM_{10}, and CO emissions from the three proposed combustion turbines (43 megawatts each) in order to determine if more refined modeling would be needed. Based on the modeling results, Cinergy will have no significant impact to air quality. Also, a toxic analysis was performed and all toxic values are well below the .5% of the PEL.

Meteorological Data

The meteorological data used in the ISCST3 models consisted of surface data from the Indianapolis National Weather Service station merged with the mixing height from Dayton, Ohio for years 1987 through 1991. The meteorological data was obtained from the EPA Support Center for Regulatory Air Models' Electronic Bulletin Board and processed using EPA procedures.

A wind analysis was performed by Dames and Moore because the relative proximity of the proposed facility is located east of the projected Indianapolis 8-hour ozone nonattainment area. The wind analysis was performed in order to identify the most commonly occurring wind flow patterns in the vicinity of the ozone nonattainment area and the proposed power plant. Five years of wind data was taken from the Indianapolis International Airport and is considered representative of the meteorological conditions in the vicinity of the proposed power plant. The prevailing wind direction is from the south through southwest during the spring and summer months when surface level ozone is primarily generated. From this analysis, the proposed power plant would be located primarily downwind from the ozone nonattainment area and is not anticipated to adversely impact the nonattainment area. A detailed description of this wind analysis can be found on Page 2 with wind rose figures (3-6) in the Dames and Moore submittal dated December 17,1998.

Receptor Grid

For the modeling analysis, OAM utilized Dames and Moore Cartesian grid network. The Cartesian receptor grid used in the dispersion modeling analyses consisted of the following: 100 meter spacing along the property boundary; 100 meter spacing out to 600 meters from the proposed power plant; 250 meter spacing from 750 meters out to 1500 meters; 500 meter spacing from 2000 meters out to 7500 meters; and 1000 meter spacing at 10,000 meters from the proposed power plant.

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Downwash

OAM used BEE-LINE's BEEST for Windows Version 6.5n for their building height and width calculations. The proposed combustion turbines will have exhaust stacks of 90 feet (27.43m). The building downwash analysis identified Good Engineering Practice (GEP) stack height as 82.45 feet (25.13m). If the physical stack height exceeds GEP stack height, GEP stack height shall be used in the modeling. Therefore, the modeling analysis employed a stack height of 25.13 meters for the three stacks.

Air Quality Dispersion Model

OAM used BEE-LINE's BEEST for Windows Version 6.5n which incorporates the latest version of ISCST3. OAM used ISCST3 for all pollutants. Dames and Moore used ISCST3 for all pollutants except for NOx which employed the ISCLT3 model. The regulatory default option was selected to met USEPA modeling guideline requirements.

Modeling Analysis

A significant impact analysis was performed by Dames and Moore and OAM for Cinergy to determine if the source would exceed significant impact levels. The significant impact levels determine whether the applicant can forgo a full modeling impact analysis. The OAM analysis for Cinergy provided the following concentrations.

Significant Impact Analysis

POLLUTANT	TIME AVERAGING PERIOD	MET YEAR	MAXIMUM MODELED IMPACTS (ug/m^3)	SIGNIFICANT IMPACT LEVEL (ug/m^3)	REFINED AQ ANALYSIS REQUIRED
PM_{10}	24 Hour	1987	.68	5	No
PM_{10}	Annual	1991	.06	1	No
NO_2	Annual	1987	.26	1	No
CO	1 Hour	1990	40.16	2000	No
CO	8 Hour	1990	11.62	500	No
SO_2	3 Hour	1988	6.44	500	No
SO_2	24 Hour	1988	1.60	500	No
SO_2	Annual	1991	.156	500	No

The Dames and Moore significant impact analysis had similar values.

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Henry County, IN **Plt ID 065-00032**

Hazardous Air Toxics Analysis and Results

The Office of Air Management presently requests data concerning the emissions of 189 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments (CAAA) which are either carcinogenic or otherwise considered toxic and may be used by industries in the state of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Management's construction permit application Form Y.

POLLUTANT	EMISSION RATES g/s	8 HOUR CONCENTRATION	PEL (ug/m^3)	% OF PEL
Chlorine	.1927	.04435	3000	.00148
HCL	.1927	.04435	7000	.00063
Lead	.00089l	.00021	50	.00042
Manganese	.05233	.01205	5000	.00024
Nickel	.18486	.04257	1000	.00426
Phosphorus	.04629	.01066	100	.01066
Arsenic	.00086	.00020	10	.002
Selenium	.00086	.00020	200	.0001
Cadmium	.000575	.00013	5	.003
Chromium	.00719	.00165	500	.0003
Cobalt	.00140	.00035	100	.0004
Antimony	.00345	.00079	500	.0002

The above concentrations show that none of the toxics modeled were above the .5% of the PEL.

Particulate Matter 2.5

EPA issued a new NAAQS for Particulate Matter less than 2.5 microns ($PM_{2.5}$) on July 17, 1997. There are 3 primary origins of $PM_{2.5}$: 1)primary particulates in the solid state, 2)condensable particulates and 3)secondary particulates formed through atmospheric reactions of gaseous precursor emissions. There will be a five-year scientific review of this standard which includes installation of $PM_{2.5}$ monitors throughout the state to better define background concentrations and gather source specific information. EPA is expected to release a new dispersion model in the future to better predict $PM_{2.5}$ concentrations. There are no assumed ratio of $PM_{2.5}$ to PM_{10} at this time. As more information becomes available, a more detailed analysis of $PM_{2.5}$ can be conducted.

Cinergy Corporation. **CP 065-10469**
Henry County, IN **Plt ID 065-00032**

Summary of Air Quality Analysis

Cinergy has applied for a construction permit to construct a proposed power plant using three combustion turbines. The application was prepared by Dames and Moore. Henry County is designated as attainment for all criteria pollutants. PM_{10}, NO_2, and CO concentrations associated with the proposed facility were below the significant impact levels. Refined modeling was not required. An air toxic analysis was required and showed no concentrations above .5% of the PEL. Based on the impact analysis, the operation of Cinergy will have no significant impact to air quality.

Appendix A: Emission Calculations
Three (3) 407.8 MMBTU/hr Turbines

Company Name: **Cinergy Corporation** **CP#:** CP065-10469
City, Indiana: **Cadiz, Indiana** **Plt ID:** 065-00032
Reviewer: **Nysa James**
Date: **01/19/99**

B. SO2 Limited Emissions

	Natural Gas	Fuel Oil	PSD Minor Limit
SO2	233.3	249.0	249

The fuel usage limits are based on the PSD minor limit threshold of 249 tons per year which the source requested on December 15, 1998.

Limited SO2 Emissions:

Worst case emissions are based on burning No. 2 fuel oil, therefore SO2 PTE is equal to 541.21 ton/yr.
(250 ton/yr/541.24ton/yr) * Maximum throughput (8954.38 gal/hr) = 4136.05 gal/hr
4136.05 gal/hr * 0.0138 lb/gal (emission factor from AP-42) = 57.07 lb/hr
57.07 lb/hr * 8760 hr/yr * ton/2000 lb = 250 ton/yr. Therefore, the three (3) turbines shall use less than 4136.05 gal/hr total.
This limit is equivalent to less than 36,231.79 kgal/yr total.

C. HAP Emissions

Heat Input Capacity: 407.8 MMBtu/hr

Pollutant	Emission Factor (lbs/MMBtu)	Emissions (tons/yr)	Emissions for 3 (tons/yr)	Limited Emissions for 3 (tons/yr)
Antimony	2.2E-05	0.04	0.12	0.05
Arsenic	4.9E-06	0.01	0.03	0.01
Beryllium	3.3E-07	0.00	0.00	0.00
Cadmium	4.2E-06	0.01	0.02	0.01
Chlorine/HCl	2.5E-03	4.47	13.40	6.20
Chromium	4.7E-05	0.08	0.25	0.12
Cobalt	9.1E-06	0.02	0.05	0.02
Lead	5.8E-05	0.10	0.31	0.14
Manganese	3.4E-04	0.61	1.82	0.84
Mercury	9.1E-07	0.00	0.00	0.00
Nickel	1.2E-03	2.14	6.43	2.98
Phosphorus	3.0E-04	0.54	1.61	0.74
Selenium	5.3E-06	0.01	0.03	0.01
TOTAL		8.02	24.07	11.15

Methodology

Emission Factors are from AP42 (October 1996), Table 3.1-4
Emission Factor for Chlorine/HCl is from EPRI emission factors.
Emissions (tons/yr) = Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu) * 8760 hr/yr / 2,000 lb/ton
Limited Emissions (tons/yr) = Limited usage rate based on SO2 emissions (kgal/yr for all three (3) turbines) * 0.137 MMbtu/gal * 1000 gal/kgal *1 ton/2000 lb

Appendix A: Emission Calculations
407.8 MMBTU/hr Turbine

Company Name: **Cinergy Corporation**
City, Indiana: **Cadiz, Indiana**
Reviewer: **Nysa James**
Date: **01/19/99**

CP#: CP065-10469
Plt ID: 065-00032

C. Determination of Fuel Equivalency

	Natural Gas	Fuel Oil	PSD Minor Limit
SO2	233.3	249.0	249

The fuel usage limits are based on the PSD minor limit threshold of 249 tons per year which the source requested on December 15, 1998.
NOx is the limiting pollutant for No. 2 fuel oil and CO is the limiting pollutant for natural gas.
Assuming that NOx does not exceed 249 tons per year requires No. 2 fuel to be limited to 20,831.2 kgal per year.
Assuming CO does not exceed 249 tons per year requires natural gas to be limited to 1,743.7 MMCF per year.
However, when more than one type of fuel is combusted, there must be a reduction in the usage of the other types of fuels combusted.
The following equivalency calculations will determine the usage ratios.
No. 2 Fuel Oil Combustion:

Limited SO2 Emissions:

Worst case emissions are based on burning No. 2 fuel oil, therefore SO2 PTE is equal to 541.21 ton/yr.
(250 ton/yr/541.24ton/yr) * Maximum throughput (8954.38 gal/hr) = 4136.05 gal/hr
4136.05 gal/hr * 0.0138 lb/gal (emission factor from AP-42) = 57.07 lb/hr
57.07 lb/hr * 8760 hr/yr * ton/2000 lb = 250 ton/yr. Therefore, the three (3) turbines shall use less than 4136.05 gal/hr.
This limit is equivalent to less than 36,231.79 kgal/yr.

Equivalency ratio:

$$\frac{95.88 \text{ lbs/MMCF}}{13.8 \text{ lbs/kgal}} = 6.9478 \text{ kgal/MMCF}$$

Therefore for every million cubic feet of natural gas burned, 6947.8 gallons of No. 2 fuel oil can be burned based on sulfur dioxide emissions.

E. HAP Emissions

Heat Input Capacity: 407.8 MMBtu/hr

Pollutant	Emission Factor (lbs/MMBtu)	Emissions (tons/yr)	Emissions for 3 (tons/yr)	Limited Emissions (tons/yr)
Antimony	2.2E-05	0.04	0.12	0.05
Arsenic	4.9E-06	0.01	0.03	0.01
Beryllium	3.3E-07	0.00	0.00	0.00
Cadmium	4.2E-06	0.01	0.02	0.01
Chlorine/HCl	2.5E-03	4.47	13.40	6.20
Chromium	4.7E-05	0.08	0.25	0.12
Cobalt	9.1E-06	0.02	0.05	0.02
Lead	5.8E-05	0.10	0.31	0.14
Manganese	3.4E-04	0.61	1.82	0.84
Mercury	9.1E-07	0.00	0.00	0.00
Nickel	1.2E-03	2.14	6.43	2.98
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